PREPARED FOR

Attn: Terri Choy AECOM 1001 Bishop Street Honolulu, Hawaii 96813

Generated 3/9/2023 3:19:01 PM

JOB DESCRIPTION

Red Hill - AFFF Assessment Sampling

ANALYTICAL REPORT

JOB NUMBER

580-124188-1

Eurofins Seattle 5755 8th Street East Tacoma WA 98424

Eurofins Seattle

Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization

M. Elaine Walker

Generated 3/9/2023 3:19:01 PM

Authorized for release by Marie Walker, Senior Project Manager M.Elaine.Walker@et.eurofinsus.com (253)248-4972

3

4

5

7

1 N

Client: AECOM

Laboratory Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Definitions	
Client Sample Results	6
QC Sample Results	9
Chronicle	10
Certification Summary	11
Sample Summary	12
Chain of Custody	13
Receipt Checklists	15

Case Narrative

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Job ID: 580-124188-1

Laboratory: Eurofins Seattle

Narrative

CASE NARRATIVE Client: AECOM

Project: Red Hill - AFFF Assessment Sampling Report Number: 580-124188-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

Three samples were received on 3/2/2023 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.1° C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

GLYCOLS

Samples AF-RHMW16-WGN01LF-2302W4 (580-124188-1), AF-RHMW12A-WGN01LF-2302W4 (580-124188-2) and AF-RHMW12A-WGFD01LF-2302W4 (580-124188-3) were analyzed for glycols in accordance with EPA SW-846 Method 8015B - DAI. The samples were analyzed on 03/08/2023.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

2

3

4

5

6

9

10

Definitions/Glossary

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Qualifiers

GC Semi VOA

 Qualifier
 Qualifier Description

 M
 Manual integrated compound.

 U
 Undetected at the Limit of Detection.

Glossary

DLC

J. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

Decision Level Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Eurofins Seattle

Page 5 of 15 3/9/2023

Client Sample Results

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-RHMW16-WGN01LF-2302W4 Lab Sample ID: 580-124188-1

Date Collected: 02/28/23 12:20 **Matrix: Water**

Date Received: 03/02/23 10:30

Method: SW846 8015C (GLY - Glycols- Dire	ct Injection (GC/FID)
-----------------------	---------------------	-----------------------

Analyte	Result Qualifier	LOQ	DL Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	30 U	5.0	1.1 mg/l			03/08/23 01:25	1

Client Sample Results

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-RHMW12A-WGN01LF-2302W4 Lab Sample ID: 580-124188-2

Date Collected: 02/28/23 09:40 Matrix: Water

Date Received: 03/02/23 10:30

Analyte	Result Qualifie		DL Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	30 UM	5.0	1.1 mg/l			03/08/23 01:48	1

4

7

8

4.6

10

Client Sample Results

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-RHMW12A-WGFD01LF-2302W4 Lab Sample ID: 580-124188-3

Date Collected: 02/28/23 09:40 Matrix: Water

Date Received: 03/02/23 10:30

Analyte	Result Qualifier	LOQ	DL Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	30 UM	5.0	1.1 mg/l			03/08/23 02:58	1

4

6

8

9

10

QC Sample Results

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Method: 8015C GLY - Glycols- Direct Injection (GC/FID)

Lab Sample ID: MB 680-766428/17 Client Sample ID: Method Blank Prep Type: Total/NA

Matrix: Water

Analyte

Analysis Batch: 766428

2-(2-Butoxyethoxy)ethanol

MB MB Result Qualifier LOQ DL Unit Analyzed Dil Fac Prepared 5.0 1.1 mg/L 03/07/23 22:18 3.0 U M

Lab Sample ID: LCS 680-766428/13 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 766428

Spike LCS LCS %Rec Added Result Qualifier D %Rec Limits Unit 20.0 50 - 150 2-(2-Butoxyethoxy)ethanol 21.5 mg/L 107

Lab Sample ID: LCSD 680-766428/14 Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Matrix: Water

Analysis Batch: 766428

Spike LCSD LCSD %Rec RPD Added Result Qualifier Limits RPD Analyte Unit %Rec Limit 2-(2-Butoxyethoxy)ethanol 20.0 23.1 50 - 150 mg/L

Lab Sample ID: 580-124188-2 MS Client Sample ID: AF-RHMW12A-WGN01LF-2302W4 Prep Type: Total/NA

Matrix: Water

Analysis Batch: 766428

Spike MS MS %Rec Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits 2-(2-Butoxyethoxy)ethanol 3.0 U M 20.0 28.2 mg/L 141 50 - 150

Lab Sample ID: 580-124188-2 MSD Client Sample ID: AF-RHMW12A-WGN01LF-2302W4

Matrix: Water

Analysis Batch: 766428

MSD MSD RPD Sample Sample Spike %Rec Analyte Result Qualifier Added Result Qualifier Limits Unit %Rec Limit 50 - 150 2-(2-Butoxyethoxy)ethanol 3.0 U M 20.0 26.8 134 mg/L 50

Eurofins Seattle

3/9/2023

Prep Type: Total/NA

Lab Chronicle

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-RHMW16-WGN01LF-2302W4

Lab Sample ID: 580-124188-1 **Matrix: Water**

Date Collected: 02/28/23 12:20 Date Received: 03/02/23 10:30

Batch Dilution Batch Batch Prepared Method Number Analyst or Analyzed **Prep Type** Type Run **Factor** Lab 03/08/23 01:25 Total/NA Analysis 8015C GLY 766428 JCK EET SAV

Client Sample ID: AF-RHMW12A-WGN01LF-2302W4 Lab Sample ID: 580-124188-2

Date Collected: 02/28/23 09:40 Date Received: 03/02/23 10:30

Batch **Batch Dilution** Batch Prepared **Prep Type** Type Method Run Factor Number Analyst Lab or Analyzed 03/08/23 01:48 Total/NA Analysis 8015C GLY 766428 JCK EET SAV

Client Sample ID: AF-RHMW12A-WGFD01LF-2302W4 Lab Sample ID: 580-124188-3

Date Collected: 02/28/23 09:40 **Matrix: Water**

Date Received: 03/02/23 10:30

Batch **Batch** Dilution Batch **Prepared** or Analyzed Method **Prep Type Factor Number Analyst** Type Run Lab 03/08/23 02:58 Total/NA Analysis 8015C GLY 766428 JCK **EET SAV**

Laboratory References:

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Matrix: Water

Accreditation/Certification Summary

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Laboratory: Eurofins Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority		Program	Identification Number	Expiration Date
ANAB		Dept. of Defense ELAP	L2463	09-22-24
The following analyte the agency does not		port, but the laboratory is not	certified by the governing authority.	This list may include analytes for which
Analysis Method	Prep Method	Matrix	Analyte	
8015C GLY		Water	2-(2-Butoxyethoxy)ethanol	

Eurofins Seattle

3/9/2023

e

3

4

5

7

8

9

Sample Summary

Client: AECOM Job ID: 580-124188-1

Project/Site: Red Hill - AFFF Assessment Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-124188-1	AF-RHMW16-WGN01LF-2302W4	Water	02/28/23 12:20	03/02/23 10:30
580-124188-2	AF-RHMW12A-WGN01LF-2302W4	Water	02/28/23 09:40	03/02/23 10:30
580-124188-3	AF-RHMW12A-WGFD01LF-2302W4	Water	02/28/23 09:40	03/02/23 10:30

1

3

4

6

_

Eurofins FGS, Seattle 5755 8th Street East Tacoma, WA 98424	Chain o	Chain of Custody Record	ecord		Seurofins Environment Testing America	Testing.
Client Information	Sampler: Eli Martin	Lab P Elain	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 2302W4AFEA06	
Client Contact:	Phone: 617-599-3612	E-Mail M.El	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 1	
Company: AECOM		PWSID:	Analysis Requested	equested	Job #:	
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract					
City: Honolulu	TAT Requested (days): Rush - ASAP	ΑP	10		B - NaOH N - None C - Zn Acetate O - ASNaO2	
State, Zip: Hawaii 96813	iance Project: A Yes	∆ No	onedia			
Phone: 808-954-4512 / 770-331-0794		1				cahydrate
Email: Watson Tanji (watson.tanji@aecom.com)/ Mark Kromis (mark.kromis@aecom.com)	WO #:		(oN)	(C)	I - Ice J - DI Water	
Project Name: CTO N6274223F0104	Project #: 60697810		0 5 8,	62	Service Control	oify)
Site: RHSF	SSOW#:) asv	2 JO J	Other:	
	Sample	Sample Matrix Type (W=water, S=sold, S=comp, O=wasteld)	beileile bie bileile bie bileile bie bileile bie bileile bie bie bie bie bie bie bie bie bie bi	A Manager		
Sample Identification	Sample Date Time	G=grab) BT=Tissue, A=Air) Preservation Code:	3d X	91 ×	Special Instructions/Note:	ote:
AT DI BANKE MONORE DOCUMA	2/2/00 1770	w w	×			
AF-KHIMW 10-W GINU ILT-2302W4	2/20/23 (4.47)		2			
	5					
	5287	73				
)			
Possible Hazard Identification Non-Hazard C Flammable Skin Irritant Poison B	3 Triknown Radiological	oaica/	Sample Disposal (A fee may b	e □	etained longer than 1 month) Archive For Months	
ested: I, II, III, IV, Other (specify)	Prelim data (Le	evel 1or2)=see TAT above. DoD Stag	Speci	ments: DOD QSM project.		
Empty Kit Relinquished by:	1		Time:	Method of Shipment:		
Relinquished by: Eli Mrthr	62/82/	1345 Company	Received by: James 1	3/2	3 1345 Company	_
Relinquished by: Jay Mes Mason	Date/Time: 278/123	1400 Company OH!		WILL BASES 6	2-23 Company	
Relinquished by:	Date/Time:	Сотрапу		Date/Time:	ompany	
Custody Seals Infact: Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:	r Remarks: $1-5$		
					Ver: 01/16/2019	910

N - None
O - Ashao2
P - Na2O4S
Q - Na2O4S
Q - Na2SC03
R - Na2SC03
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify) Special Instructions/Note: AECOM Months Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Company reservation Codes: 20C No: 2302W4AFEA05 C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid Page: Page 1 of 1 Job #: I - Ice J - DI Water K - EDTA L - EDA |Method of Shipment: | Date/Time: 2/28/23 Archive For Date/Time: Total Number of containers ო Special Instructions/QC Requirements: DOD QSM project. Carrier Tracking No(s): FedEx State of Origin: Hawaii Disposal By Lab in Street found James Mason **Analysis Requested** 2/28/ Lab PNt Elaine Walker E-Mail: M.Elaine.Walker@EurofinsET.com Return To Client Received by: × × 8012C_DAI_GL_D5/ 2-(2-butoxyethoxy)-ethanol Perform MS/MSD (Yes or No) z z Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD. Company AECOM Company G=grab) BT=Tissue, A=Air) Preservation Code: Matrix
(W=water,
S=solid,
O=waste/oll, ≥ ≥ AECOM Type (C=comp, 2 343 Sample Sampler 206 Overword Phone: 805 - 218-4453 Radiological Due Date Requested: see subconfract TAT Requested (days): Rush - ASAP 3 ტ G 0240 0750 Sample Time Date/Time: a/eta B/2Date/Time: ompliance Project: Unknown Sample Date 3/38/83 7/2/23 Project #: 60697810 SSOW#: # 0,0 Poison B Linan: Watson Tanji (watson.tanji@aecom.com)/ Mark Kromis (mark.kromis@aecom.com) Skin Irritant Deliverable Requested: I, II, III, IV, Other (specify) Mason Custody Seals Intact: | Custody Seal No. AF-RHMW12A-WGFD01LF-2302W4 AF-RHMW12A-WGN01LF-2302W4 Flammable Possible Hazard Identification SEC. 308-954-4512 / 770-331-0794 1001 Bishop St. Suite 1600 Client Information Project Name: CTO N6274223F0104 Sample Identification Relinquished by: Non-Hazard State, Zip: Hawaii 96813 nquished by: telinquished by: Slient Contact: Company: AECOM Honolulu Site: RHSF

Environment Testing

🕏 eurofins

Chain of Custody Record

Eurofins FGS, Seattle

Tacoma, WA 98424 5755 8th Street East

Login Sample Receipt Checklist

Client: AECOM Job Number: 580-124188-1

List Source: Eurofins Savannah
List Number: 2
List Creation: 03/07/23 01:20 PM

Creator: Meincke, Griffin E

Question Answer Comment

Radioactivity wasn't checked or is </= background as measured by a survey meter.

The cooler's custody seal, if present, is intact.

Sample custody seals, if present, are intact.

The cooler or samples do not appear to have been compromised or tampered with.

Samples were received on ice.

Cooler Temperature is acceptable.

Cooler Temperature is recorded.

COC is present.

COC is filled out in ink and legible.

COC is filled out with all pertinent information.

Is the Field Sampler's name present on COC?

There are no discrepancies between the containers received and the COC.

Samples are received within Holding Time (excluding tests with immediate HTs)

Sample containers have legible labels.

Containers are not broken or leaking.

Sample collection date/times are provided.

Appropriate sample containers are used.

Sample bottles are completely filled.

Sample Preservation Verified.

There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs

Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").

Multiphasic samples are not present.

Samples do not require splitting or compositing.

Residual Chlorine Checked.

4

E

6

7

8

9

10